Seminar work – 2023/2024

Write if yourself (handwritten – do not printed version!) Type the name of the element, show calculation method.

Write the name of chemical element:

1. Cr, Ti, S
2. Pb, K, Cu
3. Ag, Na, H
4. Ca, Mg, Hg
5. Cd, O, Ba
6. U, Au, Li
7. Br, Al, Cl
8. N, F, Xe
9. I, Ne, P
10. Ar, Mn, At
11. Fe, C, He

Calculate:

1. Calculate the percentage change in fabric size if the original length was 10 cm and the new length is 120 mm.
2. Calculate the percentage change in fabric size if the original length was 10 cm and the new length is 9 cm.
3. What volume in milliliters will the dye bath have if the weight of the fabric sample is 2 g and the bath ratio is 1:50?
4. What volume in milliliters will the dye bath have if the weight of the fabric sample is 3 g and the bath ratio is 1:20?
5. What volume in milliliters will the dye bath have if the weight of the fabric sample weight is 2 kg and the bath ratio is 1:30?
6. What volume in liters will the dye bath have if the weight of the fabric sample is 1 kg and the bath ratio is 1:20?
7. If the bath volume is 100 ml, the bath ratio is 1: 100. How many grams does the fabric sample weigh?
8. If the bath volume is 20 ml, the bath ratio is 1:40. How many grams does the fabric sample weigh?
9. If the bath volume is 2000 ml, the bath ratio is 1:20. How many grams does the fabric sample weigh?
10. If the bath volume is 2000 ml, the weight of the sample is 20 g. What is the bath ratio?
11. How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 2 g and the dye loading percentage is 2 %?
12. How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 10 g and the dye loading percentage is 1 %?
13. How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 5 g and the dye loading percentage is 10 %?
14. How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 10 g and the dye loading percentage is 2 %?
15. How many milliliters of 100 g.l-1 NaCl solution will you use if you dose 0.1 g of NaCl?
16. How many milliliters of 100 g.l-1 NaCl solution will you use if you dose 10 g of NaCl?
17. How many milliliters of 10 g.l-1 NaCl solution will you use if you dose 0.1 g of NaCl?
18. How many milliliters of 50 g.l-1 NaCl solution will you use if you dose 0.5 g of NaCl?
19. How many milliliters of 50 g.l-1 NaCl solution will you use if you dose 5 g of NaCl?

Write the formula of anorganic compound:

1. Sodium carbonate
2. Sodium hydrogen carbonate
3. Calcium sulfate
4. Copper hydroxide
5. Cupper(I) oxide
6. Calcium chloride
7. Potassium permanganate
8. Glauber's salt (Sodium sulfate decahydrate)
9. Sodium sulfate
10. Copper(II) sulfate pentahydrate
11. Sulphuric acid
12. Sodium dithionite
13. Sodium thiosulfate
14. Ammonia
15. Ozone
16. Hydrochloric acid
17. Phosphoric trihydrogenic acid
18. Sodium sulfide
19. Sodium chloride
20. Aluminum sulphate
21. Titanium dioxide
22. Nitric acid
23. Sodium hydroxide
24. Potassium hydroxide
25. Hydrogen peroxide
26. water
27. Sodium hypochlorite
28. Sodium chlorite
29. Potassium dichromate
30. What chemicals does Fehling I contain?
31. What chemicals does Fehling II contain?

Write structural (constitutional) formula following organic compounds:

1. Acetic acid
2. Formic acid
3. Terephthalic acid
4. Methanol
5. Ethylene glycol
6. Glycerol
7. Ethanol
8. Urea
9. Sodium acetate
10. Formaldehyde
11. Naphthalene
12. Anthraquinone
13. Phenol
14. Carbon tetrachloride
15. Chloroform
16. Benzene
17. Methane
18. Ethane
19. Propane
20. Acetone
21. Polyethylene terephthalate
22. Polypropylene
23. Polyethylene
24. Polyamide 6
25. Polyamide 6.6
26. Polyamide 11
27. Polyacrylonitrile

Calculate:

1. How much g of NaCl contains 100 g of 10 % solution?
2. How many g of KBr contains 10 kg of 10 % solution?
3. How much g of NaCl contains 100 ml of 10 g.l-1 solution?
4. How much g of HCl contains 10 ml of 100 g.l-1  solution?
5. How much kg of KCl contains 100 l of 100 g.l-1  solution?
6. How much g of NaCl contains 100 g of a 5 g.l-1  solution (think about 1 g.cm-3 )? 95) How much g NaCl contains 1 kg of 5 g.l-1 solution (think about 1 g.cm-3)?
7. How much g of NaCl do you to prepare 200 g of 5 % solution?
8. How much g of NaCl do you need to prepare 100 g of 5 % solution?
9. How much g of NaCl do you need to prepare 100 g of a 10 % solution?
10. How much g NaCl contains 1000 g of a 10 g.l-1  solution with a density of 1 g.cm-3? 100) How much g of NaOH do you need to prepare 100 g of a 35 % solution?